

International Workshop on Signal Processing (IWSP 2018)

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Kish Island

Artificial Intelligence: From Imagination to Realization

by *Dr. Mohammad Ali Akhaee*

Abstract:

Since many years ago artificial intelligence (AI) had been employed in signal processing applications such as classification, clustering, object identification, etc. During the first decade of 2000s, with development/improvement of graphical processing tools and instruments, this topic has been dramatically elevated. By introducing convolutional neural networks (CNN) and increasing the number of layers, a new concept, called "Deep Learning" in research papers and also in industry has been created. These newfound networks and algorithms which are based on high power processing and immense data bases have proven themselves so powerful in a way that many people believe that the realization of intelligent robots (who take the control of tasks which were exclusively done by humans) in science-fiction movies comes true.

In this presentation, after introducing the concepts of deep learning, we intend to present its applications in sound identification, identifying and tracing objects in image and video, scene detection, conceptual analysis of videos and summarizing, big data analysis, etc. Moreover, the universal approach toward machine learning paradigm, along with latest projects of reputable companies such as Google, Facebook, Microsoft, and others will be introduced. Finally, we finish the discussion by showing some demos of applied researches conducted in the Secure Communication Lab (SCL) at the University of Tehran. The purpose of this demo presentation is to exhibit the scientific capacity of students and researchers in conducting high technology activities that make wealth by employing ordinary hardware facilities like graphical cards and processors.

About the speaker:

Dr. Mohammad Ali Akhaee received the B.Sc. degree in Electronics and Communications Eng. from the Amirkabir University of Technology, Tehran, Iran, and the M.Sc. and Ph.D. degrees from the Sharif University of Technology, Tehran, Iran, in 2005 and 2009, respectively. He is currently an Assistant Professor with the College of Engineering and the Director of the Secure Communication Laboratory, University of Tehran, Tehran, Iran. He has authored or coauthored more than 60 papers, and holds one Iranian patent. His research interests include the area of signal processing, in particular multimedia security, data hiding, and machine learning.

Dr. Akhaee was the Technical Program Chair of EUSIPCO '11 and the Executive Chair of ISCISC '14 and Financial Chair of RTEST'18. He received the Governmental Endeavour Research Fellowship from Australia in 2010 and the Governmental award from Ministry of Information and Communication Technology (ITC) from Iran in 2017. He has performed several industrial projects such as face detection and recognition, video watermarking, word spotting, audio and video fingerprinting, network forensics, etc. He has been the CEO of Soroush Rasaneh Company for three years and the consultant of several companies and organizations.

Location

Workshop venue: Iran Telecommunication Research Center (ITRC), North Kargar st., Tehran, Iran.

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